

## W6IFE Newsletter

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The 1 August meeting will have our treasurer / historian George, K6MBL show video of his conversion of many SBMS photographs and slides. SBMS meets at the American Legion Hall 1024 Main Street Corona CA at 1930 hours local time. Plans will be started for the upcoming UHF and microwave contests in August and September.

Last meeting was at Craig Park , Brea Ca on 6 July where 10 members had a good lunch under the trees with spouses and significant others. Discussion of wideband rigs was held along with demo of two rigs. John WA6BFH brought words from the Inland Empire Council of Clubs which is trying to have the next ARRL SW div. convention in Riverside. Sounds like SBMS is in for demos/ talks. Other clubs are in for dollar profits and thus will have more responsibilities and work.

Visitor- Cliff Savage KD6AUN of Arcadia stopped by the picnic to see what SBMS was doing.

Field activities by members have included contacts by Frank, WB6CWN from Keller Pk DM14LE to Phil on some ski place (Fresco Pk DM38) in Utah on 10,368 Mhz and another contact from Frank at Blueridge DM14 to Phil later that day. Unsuccessful attempts to Phil were made by Chuck, WA6EXV and Bill, WA6QYR at home QTHs in DM15DP. Bill did contact Frank via bounce off Owens Peak (DM05).

### Antenna Measurement Results - 7/20/96 Microwave Group of San Diego

Present were N6IZW, W6DXJ, KC6UQH, KD6PBH, W6OYJ, and NE60. The test source and receiving instruments were provided by W6DXJ. The source had approx. 1 watt output on 10.368 GHz into a horn antenna. It was amplitude modulated at 1000 Hz. About 300 yd. away, across a gully, the receiving site was set up with a crystal detector and 1000 Hz tuned-amplifier/meter (HP battery powered SWR Meter). These measurements took place at a park across the street from N6IZW's home QTH in La Mesa. During the measurements some multipath errors were observed. The transmitter location was moved once and the receiving site was changed twice before the results appeared to be satisfactory. The reference antenna at the receiving site had been calibrated previously on a professional range. It was a 12-inch military surplus parabola, center-fed with a waveguide tapered to a dipole-reflector end. the dipole and reflector had been filed down to minimize SWR at the 10.368 GHz frequency.

Results: Art, KC6UQH: 36-inch parabola center-fed with cavity-backed spiral (helix). Measured gain was 36 dBic (circular). This antenna was used by Art in recent 10 GHz ATV DX attempts. A 12-inch antenna identical to the reference antenna (see above). Measured gain 28 Dbi, identical to the reference antenna. A Home-brew Horn made with PC material, 5.5 x 4.625 inch aperture, Length was 8.5 inches.

Measured gain was 22 dBi. J ,KD6PBH: RCA 18-inch DSS off-center fed dish with horn feed per "QEX" magazine. Measured gain was: 33 dBi. Ed, W6OYJ: 21-inch parabola with x-band polaplexer feed. Same as used in 1986 and 1987 10 GHz contests. Measured 31 dBi with polarization peaked. Surplus Horn with aperture 5 x 4.5 inches, length 9.25 inches. Measured gain was 21.5 dBi. John, WB6BKR (not present but submitted by proxy): Pipe fitting feed for 10 GHz. Measured at 14 dBi gain. No tests were made at other frequencies due to lack of suitable modulated sources.

73s from Ed, W6OYJ

### Scheduling

3-4 Aug. UHF contest  
17-18 Aug. 10 Ghz and up Cumulative Contest see June QST p107 for new rules.  
5 Sept. SBMS meeting TBD  
14-16 September VHF QSO Party  
21-22 Sept. 10 Ghz and up contest.  
3 Oct. Dick K6HIJ RF component design  
7 Nov. TBD

San Bernardino Microwave Society is a technical amateur radio club affiliated with the ARRL having a membership of over 100 amateurs from Hawaii to the east coast. Dues are \$15 per year which includes a badge and monthly newsletter. Your mail label indicates your call followed by when it is time to renew your dues. Dues can be sent to the treasurer as listed under the banner on the front page. If you have material you would like in the newsletter please send it to Bill WA6QYR at 247 Rebel Road Ridgecrest, CA 93555, WA6QYR@WA6YBN.SOCA.CA.USA, <http://www.geocities.com/SiliconValley/2775> or via snail mail at A.R.S. WA6BFH 701 N. Citron Anaheim, CA 92805 Other communication can be directed via mail to: [ke6alm@loop.com](mailto:ke6alm@loop.com) at the Inland

Empire Council of Amateur Radio Organizations, or to mail to: [wireless@cyberg8t.com](mailto:wireless@cyberg8t.com) at the W6TJ PBBS. Directors are WA6BFH, KD6AUN, KE6ALM, K6BD, KC6YVA, AC6SX Nets and other activities include: Tech Net Sunday 17:30 hrs. WB6ELR Rptr. 147.210 MHz. (+) CTCSS 156.7 Hz. and CW Practice Net Wednesday 21:30 to 22:30 hrs. (MCW on same repeater above)

Since the Tech Bench Elmers' formation in February of 1992 this group has existed for the betterment of Amateur Radio in general and specifically the preservation of the historic achievement and custom of the Amateur Radio service as an originator of technical innovation. Our charter most poignantly notes that formally stated recognition of the Amateur Radio service, as defined in the Federal Communications Commission regulation 97.1 parts B, C, D, which describes the "Basis and Purpose" of Amateur Radio and further annotates : #1 Continuation and extension of the Amateur's proven ability to contribute to the advancement of the radio art. #2 Encouragement and improvement of the Amateur service through rules which provide for advancing skills in both the communication, and technical phases of the art. #3 Expansion of the existing reservoir within the Amateur Radio service of trained operators, technicians, and electronics experts.

The Tech Bench Elmers' group is interested in and also committed to the process of applying technology. For this reason we explore not only those facets of technology as they might relate to the practice of Amateur Radio or radio in general but, also those facets of the process that impel industry. This is not because our motivation is to profit in the pecuniary sense, but rather to profit in the intrinsic or ethereal. Ether, is after all the expression or first description used to explain the medium that allowed radio waves to propagate! Our activities are focused or oriented to enhancing our knowledge of this process. In the past we have sponsored Antenna Tests, seminar gatherings for the discussion of radio design, and other activities to simply promote or protect the existence of Amateur Radio. We have also arranged tours of certain industrial institutions to gain a better overall knowledge and perspective of the practical aspects of design and planning.

#### 24 Ghz activity

Several SBMS members have purchased the 18 inch offset feed DSS antenna from MCM Electronics 650 Congress Park Dr. Centerville, OH 45459-4072 1-800-543-4330. The gray steel antenna is part number 221196 @\$13.81 and the mounting bracket is 221199 at \$15.59. Flatten head stove bolts to join the two are 212054 @ \$1.88. Throw in some \$5 shipping and you have most of the pieces to get on the air on 10 Ghz per the Paul Wade, N1BWT articles in Dec. 95 and older QEX. Chuck, WA6EXV is leading WA6QYR and others in to using the antennas for 24 Ghz operation.

Chuck has been making measurements on his antenna range on the antenna at 10368 Mhz and is finding similar results to Paul. Pointing the feed at the center of the dish causes the gain to be down by about 1.5 dB. But the benefits for those working satellites is that the spill over is down and not seeing the hot earth behind the dish. Pointing the feed at the parabolic focal point gets the gain up for us amateurs who will be looking to the horizon for those DX contacts and the feed is looking at the sky for a low noise background. As I write this Chuck is testing the antenna at 24 Ghz. He first had to get the pieces build to make the measurements at 24 Ghz.

As before we'll be working through the gunnplexer stage and then on to the narrow sideband rigs. There are a few amateurs on 24 Ghz in the southern California area and some in the northern California Bay area. Time to move up since the gunns are available from Plessy and New Japan Radio at under \$20. Question for the group- what is the operating frequency on 24 Ghz? The picnic had 24.192 Ghz as the weak signal calling frequency and 24.155 Ghz and 24.125 Ghz as the common wideband FM. Anybody have a different opinion as to where we operate?

#### Other sources of info

##### 73 Amateur Radio Today

In the July issue Chuck Houghton WB6IGP (member of the San Diego Microwave Group) in his "Above and Beyond" column writes about the wideband gunn transceiver. He talks about getting in some more TDA-7000 chips, boards and data for building more transceivers \$12.50--- Chuck can be reached at [clhough@aol.com](mailto:clhough@aol.com) or 6345 Badger Lake Ave San Diego, CA 92119. In the June 73 issue Chuck talks about some bench test equipment as he usually does in every issue. Those little pieces you can build out of other swap meet toys to make measurements on the bench. The August 73 has more discussion on test items for 10 Ghz like the wavemeter and W6IFE SBMS boomerang.

Also in the July 73 is an article by Arthur White on the Maidenhead grid square system we use in reporting both 4 and 6 digit locations during contests.

#### QST

July. The Sumner piece about the need to write to the FCC about the 2 mtr and 70 cm bands, The FCC introduction of a Family Radio Service located in 14 channels between 462 and 468 Mhz- A Radio Shack petition got them some spectrum to sell products. June QST WA6OWD picked up VUCC 91/92 on 10 Ghz at 5 grids each and a 10 grid portable 6.

Hello from an ex-SBMS member!

I've just looked over the SBMS internet page after finding it through af9y...EME homepage...10 Ghz. I can see that the society has grown since I was a member 1970-79. I recognize a few familiar names and calls. Read the QST article on the 40th anniversary...that was fun to reminisce over. Who am I? Name is Ed Cole and current call is AL7EB (but was formerly K8MWA). I worked with Dick Kobly at Goldstone from 1971-72. I was SBMS corresponding secretary for a while. Best DX was with Chuck Swedblom and Bill Burns somewhere in the foothills of the Sierras from my place in Barstow using Dicks rockloc rig and a six foot dish...think the shot was about 80 miles on 3300 Mhz.

I've been in Alaska since 1979. Currently getting a station set up for mode B Oscar using Down East Microwave's 432 transverter. Still building it but have 145 Mhz receive set up. Big project for the summer is putting up a 24 dBic 437 Mhz array to receive the mgs beacon. I am listed on Mars-Net. I will also sign on your SBMS net.

I still have two MA 10 mw Gunnplexers and a partially complete receiver/modulator. Haven't even lit them up. After nearly 18 years I wonder if they still work? Not much interest in microwaves in Alaska. P3D may change that. Other projects: converting a 2.4 meter dish to 2.4 Ghz for mode-S and later 1.2 and 10.3 Ghz. The dish is a surplus marine satellite earth station (Ku-band) with 3 axis control and all the electronics... and it only cost me \$100! I have a modest HF station on 80/20m with dipole antennas. I just purchased a home last fall with 5 acres...so I'm sure the antennas will soon sprout.

Well, enough rambling. I hope this is not too long for this mail box. Hope to hear from some of my old SBMS buddies. 73s, Ed Cole, AL7EB P.O. Box 8672 Nikiski, AK 99635 (907)776-5829 [ercolepp@corcom.com](mailto:ercolepp@corcom.com)

Microwave DX Records-Greetings from the UK to all microwavers...

I am collating data on microwave DX records for eventually publication (and continued updating) in the RSGB's Microwave Newsletter (of which I am the editor). I would like anyone who has relevant information to e-mail me, at [http://www.fcc.gov/Bureaus/Engineering\\_Technology/Notices/fcc96193.txt](http://www.fcc.gov/Bureaus/Engineering_Technology/Notices/fcc96193.txt) WordPerfect version (with footnotes and special formatting): [http://www.fcc.gov/Bureaus/Engineering\\_Technology/Notices/fcc96193.wp](http://www.fcc.gov/Bureaus/Engineering_Technology/Notices/fcc96193.wp)

10 GHz repeater

Mike, KC6CCC, now has his 10400 MHz in / 3480 MHz out FM ATV repeater coordinated and up and running on Santiago peak (33-42.4N 117-32.0W DM13). 3 stations so far have worked through it with good results. The antennas are Omni horizontal. Most are using padded down satellite TV receivers and Gunnplexers. In addition he has a remote controlled tower mounted camera he can switch to with xlnv views of So. California and a hawk that likes to clean its beak on antennas.

Tom, W6ORG

News from: [pa0ez@bbs.hacom.nl](mailto:pa0ez@bbs.hacom.nl) (PA0EZ)

I am new to internet e-mail, but think it is a worthwhile system for communication between ham-specialists. I am qrv on all bands 435 MHz - 24 GHz. On 24 GHz I have (as most other 24 GHz amateurs in Europe) a very limited power. I use a pair of MGF1323 FET's in the PA, giving 100 mw to the 38 cm dish. This is a reasonable power for local (say up to 100 kms) contacts in our flat region, but for better DX experiments - such as via rain-scatter - somewhat more power is needed. I have heard that in the US some 18 Ghz Hughes TWT's are to be found at flea-markets etc., which seem to work also on 24 GHz.

I have tried to use my 8-18 GHz VARIAN TWT which gave 40 Watts out on 10 GHz to amplify 24 GHz but only some noise could be detected on 24.

Do you know a source for obtaining TWT's for amateur prices which produced at least 1 Watt at 24 GHz?

My in laws living in the LA area could help in transporting to Holland. 730s

Western States Weak Signal Society

I was asked by John WA6BFH to contact the WSWSS about interchange of information of interest to both groups. I emailed Bob, KD6UIH at CALHAM@aol.com and received a reply. The WSWSS is for activity on all bands 50 MHz and above including microwave.

We have several members that are also members of the SBMS. I am the treasure for WSWSS and David KI6FF is secretary and editor of the newsletter. Our newsletter is sporadic with four issues a year. Bob attended a couple of SBMS meetings until his car was broken into and a radio stolen. [Hopefully that type event has been put to rest by SBMS.] I will try to include WSWSS in future newsletters as I receive information. Bill, WA6QYR

ARRL Southwestern Division info

Since the Pacific Division monthly update is included in our newsletter, it was suggested that I contact Fried Heyn, SWDIV Director, [[0002542030@mcimail.com](mailto:0002542030@mcimail.com)] to see about including information since a majority of our members reside in SW Div. I received a reply that SW puts out just one newsletter each year. However, it goes

to all 15,000 SWD members. The next one is coming out in a couple of weeks and I will make sure you get a copy. Besides communications directly from ARRL HQ, I get the word out to clubs via assistant directors, councils of clubs, and the section managers. My contact with the five SWD section managers includes a weekly net (Sundays 8 AM on 3965 KHz). As I receive information from SWDIV, it will be added to the newsletter. Bill, WA6QYR

Pacific Division Convention - Pacificcon96 Oct. 18-20, 1996, at the Concord Hilton Hotel in Concord CA. Details can be found on the Pacific Division Home Page at <http://www.pdarrl.org/or> by calling (510) 932-6125; e-mail [Pacificcon@designlink.com](mailto:Pacificcon@designlink.com) or at <http://www.mdarc.org>. The Mt.Diablo ARC (MDARC) is the sponsor again this year.

#### 10 Ghz Contest Plans

I am announcing my intentions for the upcoming X band contest to perhaps provide an incentive for people to complete/upgrade their systems. I am upgrading my system to a 6 foot dish mounted on top of my van, 15 Watt TWT, and sub 2 dB system NF. This will provide over 10 dB in transmit power over the previous system. , or an ERP of 300 kW. August 17, I will be perched on the 2200 ft microwave telephone site on the Vizcaino Peninsula of Baja California, DL27QP. I have worked Frank, WB6CWN, located on San Benito Peak from this site at 698 miles. I would like to extend the distance with you folks in Northern California. The distances to a few of the sites that I have reasonable positions on are as follows: Mt. Hamilton, 785 miles; Mt. Diablo, 820 miles; Mt. Vaca, 858 miles; Pt. Reyes, 863 miles. The best propagation in the past has been in the early morning or evening. Conditions in September are normally not as good, so for the second weekend, I will probably be in grids DL29, DM10, and DM20.

Please E-mail or landline me at (619) 224-8879 with your plans as the time approaches. Adios, Jack N6XQ [n6xq@ham-radio.com](mailto:n6xq@ham-radio.com)

Preliminary Northern California info for 10 Ghz in August:

Saturday August 17, Ron, K6GZA and Jim, W6ASL will be on Mt. Tamalpais (above Pt. Reyes) Grid is CM87QW. Others may be with us....Sunday August 18, K6GZA will be on Loma Prieta CM97BC...W6ASL will be on Mt. Diablo at my 2000' Elv. Grid is CM97AU.

#### SDMG July Report

The Microwave Group of San Diego met at N6IZW's QTH on Monday July 15th. Good turnout with several newcomers present. These included Paul Chominski, SM0PYP/W6 (University City-San Diego); Ken Stubblefield, N6ALA (Escondido); and Chris Reeser, KF6ELO (Encinitas, on the Bluff overlooking ocean).

Paul Chominski SM0PYP, recently moved to the US from Sweden. He received his first EME echo in 1971, and has been extremely active in EME work since 1981 on 144, 432, 1296, and 2304 MHz. He showed photos of the extensive amount of home built equipment and lab equipment used to support EME. Included in the personal stuff shipped here is a 26 ft dish he plans to set up for USA EME operation. He wants to get on both 10 and 24 GHz EME and is presently checking out a transceiver built for 10 GHz . On some of the bands he plans to REDUCE his TX power to meet FCC limits!! He expects to be here for several years, so we can look forward to a future SD presence on X-band EME. Paul's email address is "paulc@pcsi.cirrus.com".

Ken Stubblefield, N6ALA, is active on amateur TV and has gear for 1.2, 2.4, and 3.4 GHz. Chris Reeser has a brand new ham ticket and is eager to get involved with microwave.

Jack, XE2/N6XQ plans to operate during the August contest from several grids in Baja, using his van equipped with a 6-ft dish for X-band, with 15 watts Tx power. He is building an LNA using the WA6EXV design.

The Microwave Group will be at the park, across the street from Kerry Banke's (N6IZW) QTH in La Mesa on Saturday July 20 from 0900-1200 for antenna gain measurements.

Besides X-band, 2.4 , 3.4, and 5.7 Ghz antennas may be tested at this session.

Kerry, N6IZW reported that he plans to have the 10 GHz Mt Miguel repeater installed back on the mountain by the end of July. He also demonstrated, on his computer, a digital signal processing FFT algorithm developed by AF9Y. This showed detection of a tone signal in a 2-Hz bandwidth. It appeared that the signal was easily viewed on the display, when it was about 10 dB below the normal audio bandwidth S/N threshold.

The advantage of this approach is that the algorithm finds the signal, within the passband, when it cannot be heard by ear. Kerry feels this approach may allow antenna peaking on very weak signals.

At the July meeting of the Palomar Amateur Radio Club, N6IZW gave a presentation on the Mt. Miguel 10 GHz on-frequency/all mode repeater. Also giving brief presentations and equipment demonstrations were John, WB6BKR, and Ed, W6OYJ. At the meeting, Dale Bredon came up and happily reported he had applied for, AND RECEIVED FROM THE FCC, his old call sign W6BGK! Dale is an early, if not a charter member of the SBMS.

73s from Ed, W6OYJ

